February 29, 2000

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State Water Resources Control Board
901 P Street
Sacramento, California 95814

Suisun Marsh Monitoring Program Channel Water Salinity Report for January 2000

The California Department of Water Resources is required to provide monthly channel water salinity compliance reports for the Suisun Marsh to the State Water Resources Control Board (SWRCB). This reporting requirement is based on SWRCB Water Rights Decision 1641 dated December 29, 1999 and previous SWRCB decisions.

I have attached a copy of *Suisun Marsh Monitoring Program Channel Water Salinity Report for January 2000*. The report includes data summaries and comparisons of the data with salinity standards. The report also includes a general discussion of water salinity conditions in the Marsh.

Please contact me at (916) 227-2727 or lcook@water.ca.gov if you have any questions.

Sincerely,

ATTACHMENT

Suisun Marsh Monitoring Program
Channel Water Salinity Report for
January 2000

Background

Conditions affecting channel water salinity levels in the Suisun Marsh include Delta outflow, rainfall and local creek inflow, managed wetlands operations, and operation of the Suisun Marsh Salinity Control Gates (SMSCG). Evaporation may also affect salinity levels in some areas of the Marsh, especially during summer months.

State Water Resources Control Board (SWRCB) Order WR 98-6, issued September 25, 1998, authorizes DWR to experimentally test the effects of modified flashboards at the SMSCG on salmon behavior. The modifications include gaps between adjacent flashboards. When in place, these modified flashboards tend to allow channel salinity levels in the Marsh to rise somewhat higher than when the original flashboards are used. Experimentation with the modified flashboards began in October 1998 and may continue periodically through May 2001.

Channel water salinity standards (Table 1), expressed as specific electrical conductivity (SC), are specified in SWRCB Water Rights Decision 1641 for five compliance monitoring stations within and near the Suisun Marsh (Figure 1). Four of these -- National Steel (S-64), Beldon's Landing (S-49), Volanti (S-42), and Sunrise (S-21) -- are located in the northern and eastern portions of the Suisun Marsh. Another, Collinsville (C-2), is located just east of the Marsh in the western Delta. Two other stations, Morrow Island (S-35) and Ibis (S-97), located in the western Marsh are monitoring stations only, however, data from these are included in this report for information purposes.

Compliance with SWRCB channel salinity standards for the Suisun Marsh is determined at the end of each month by comparison of the monthly mean SC level at high tide for each compliance monitoring station with the standard. The progressive monthly mean SC is used to trace salinity conditions during each month. The progressive mean is calculated for each station by averaging mean SC at high tide for a given day and all previous days that month. New progressive mean calculations begin at the start of each month.

Results and Discussion

Salinity standards were met at all compliance monitoring stations during the reporting period (Table 1 and Figure 2).

Delta outflow increased overall during January (Figure 3). The monthly mean Net Delta Outflow Index (NDOI: the estimated average daily rate of outflow from the Delta) for January was calculated as 19,933 cubic feet per second (cfs) compared to 10,811 cfs in December 1999. A substantial increase in Delta outflow occurred after January 11, 2000 with NDOI peaking at over 62,000 cfs on January 27, 2000. The January 2000 NDOI, was, however, relatively low compared to recent years (e.g. January 1999 NDOI = 36,373 cfs, January 1998 NDOI = 78,404 cfs).

The salinity control gates were left in the open position with the modified flashboards in place from December 10, 1999 through January 16, 2000. For the remainder of the reporting period the SMSCG was operating with the modified flashboards in place.

Total rainfall at the Waterman Gauging Station in Fairfield during January 2000 measured 5.97 inches compared to 0.52 inches in December 1999.

Channel salinity levels in the Marsh during January were mostly a function of Delta outflow and SMSCG operation. Gate operation and increased Delta outflow after January 16, 2000 resulted in decreasing salinity levels at all compliance monitoring stations (Figure 2).

Monthly mean SC at high tide at the five compliance monitoring stations and monitoring stations S-35 and S-97 in January 2000 were compared with means for the previous nine years (Figure 4). Except at C-2 in 1994, the monthly mean SC at high tide during January 2000 was higher at each of these stations compared to those of the previous 7 years. This was probably due to limited seasonal rainfall from October 1999 through approximately mid-January 2000 and relatively low Delta outflow during January 2000.

Table 1
Comparison of Mean Monthly High Tide Specific Conductance at Suisun Marsh Water Quality Compliance Stations to State Water Resources Control Board Standards

January 2000

Station Name	Station ID	Specific Conductance (mS/cm)*	Standard (mS/cm)*
Collinsville	C-2	4.3	12.5
National Steel	S-64	6.1	12.5
Beldons Landing	S-49	8.8	12.5
Volanti	S-42	9.8	12.5
Sunrise Club	S-21	10.5	12.5

* = milliSiemens per centimeter

Figure 1. Suisun Marsh continuous compliance monitoring and other monitoring stations. Compliance monitoring stations are indicated in green.

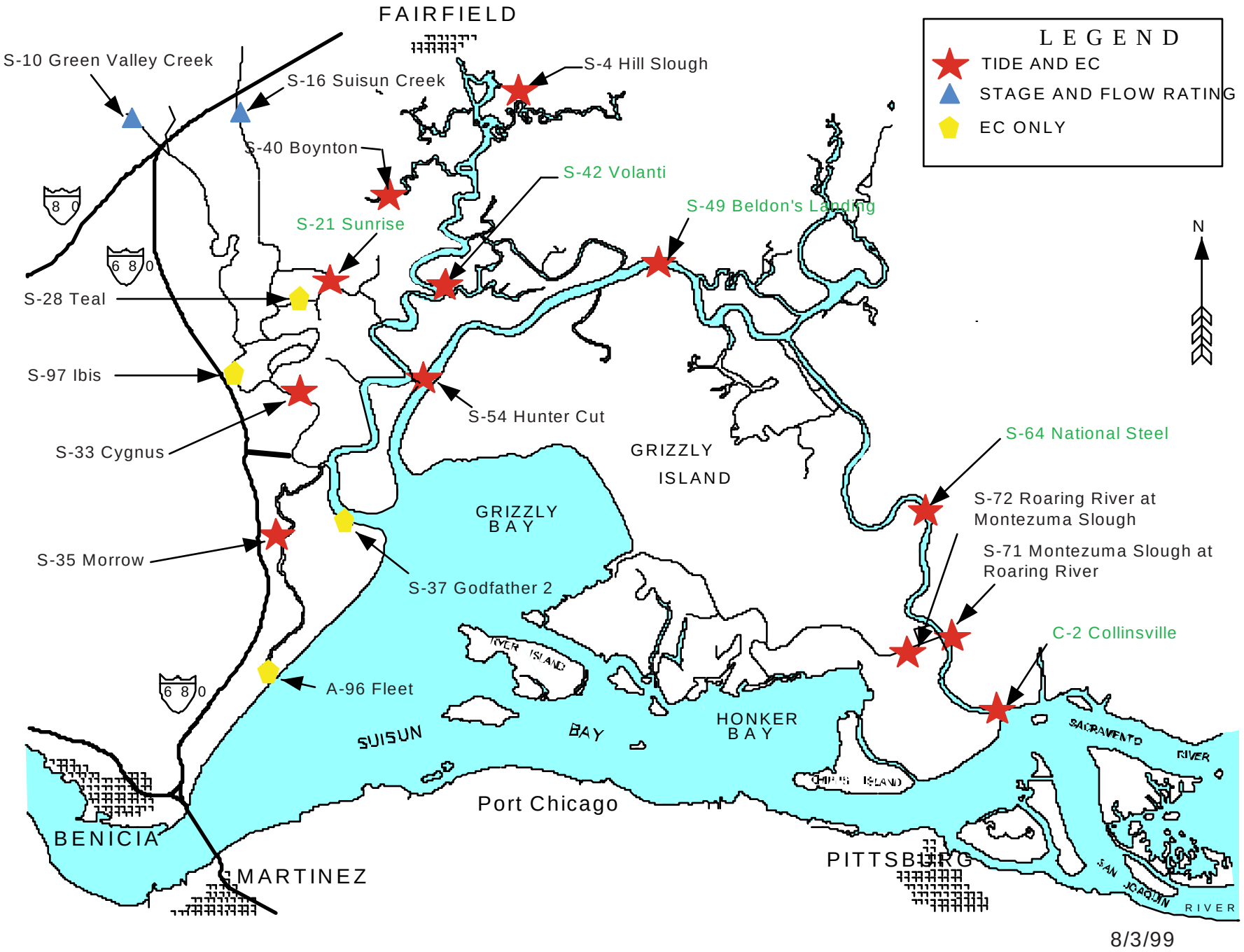
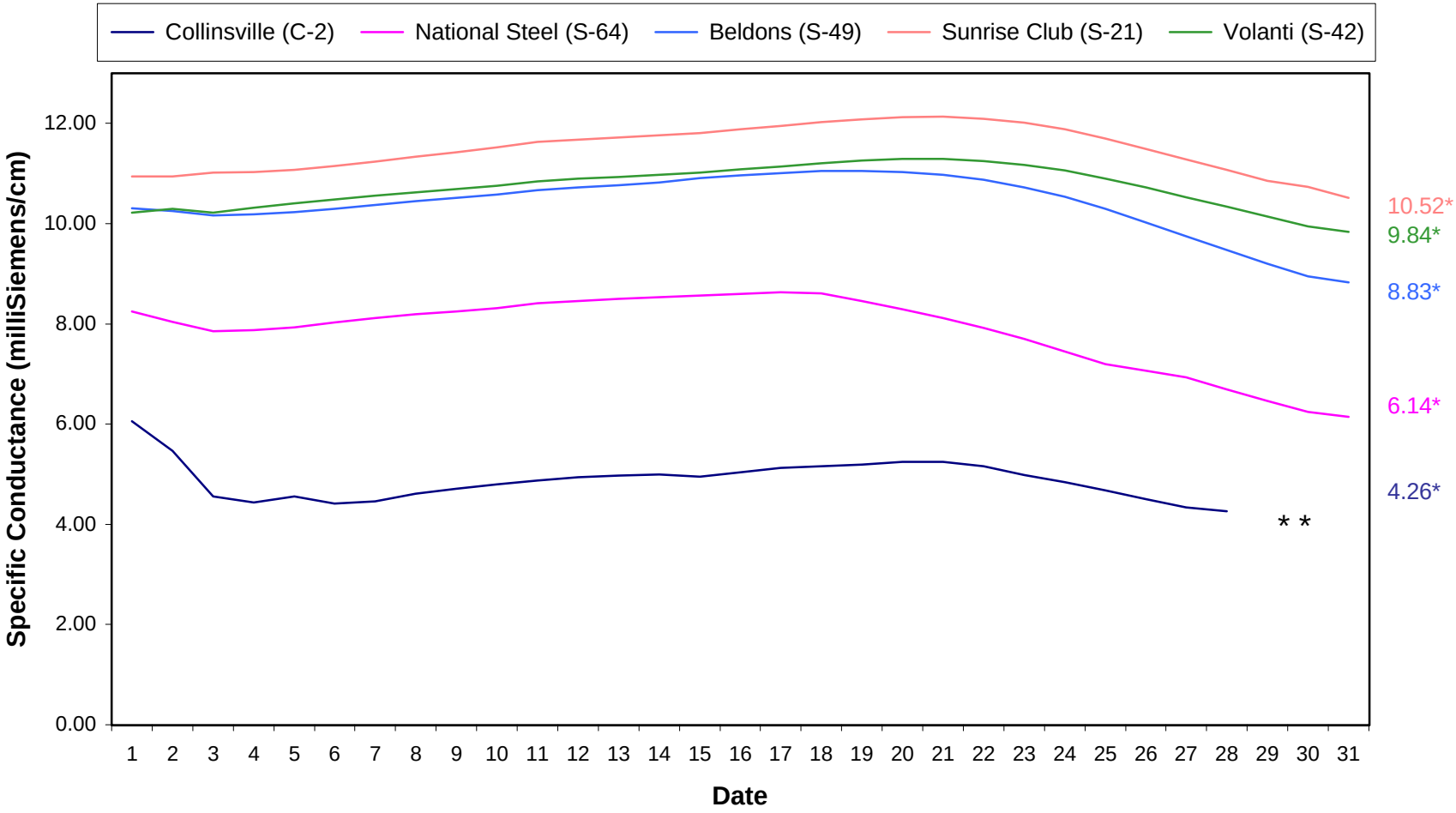


Figure 2. Suisun Marsh Calendar Month Progressive Mean of the Specific Conductance at High Tide January 2000

Standard = 12.5 mS/cm



* = monthly mean specific electrical conductance at high tide.

** = data not available.

Figure 3. Net Delta Outflow Index for January 2000

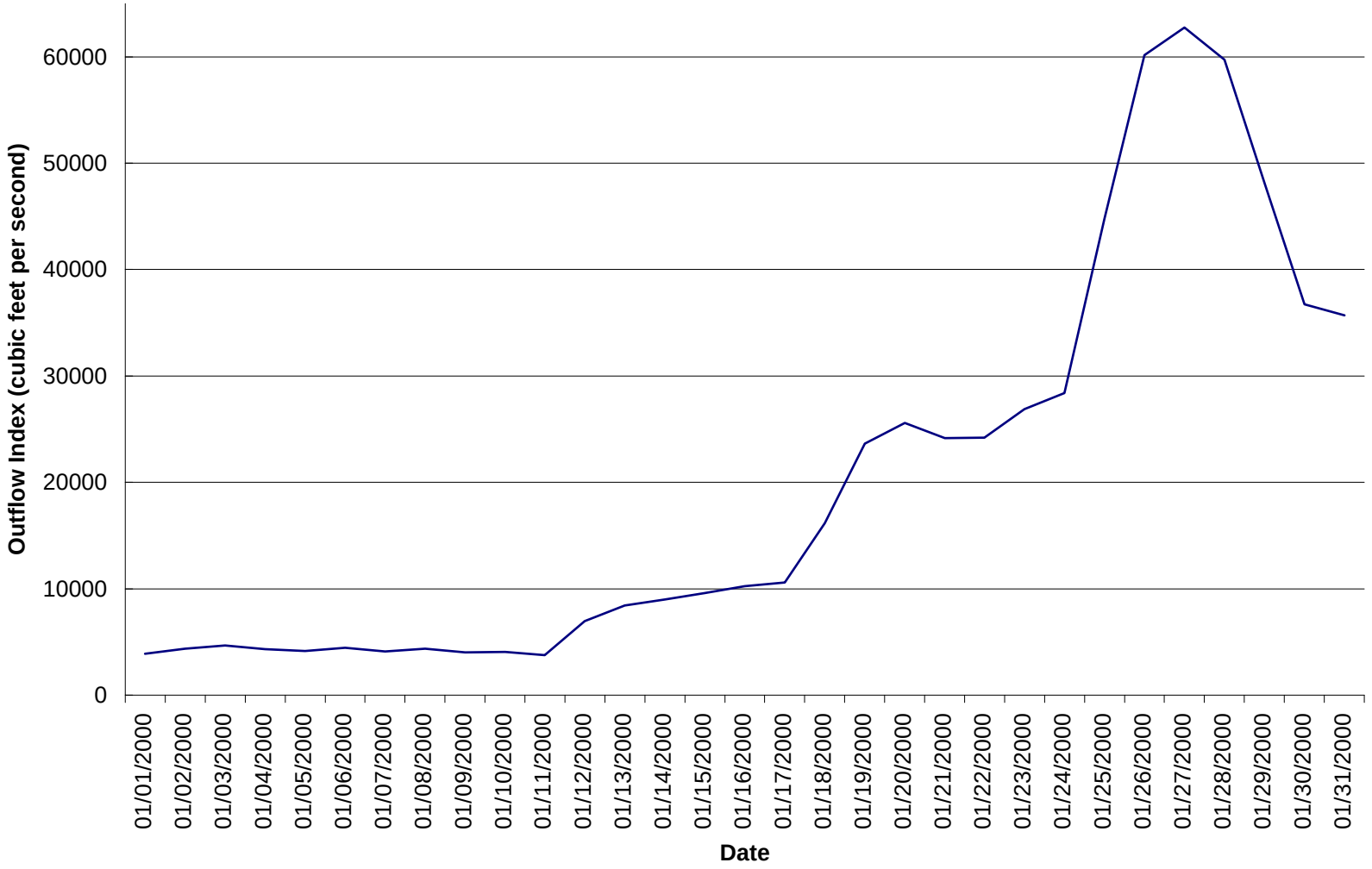


Figure 4. Mean Monthly Specific Conductance at High Tide:
Comparison of Monthly Values for Selected Suisun Marsh Compliance Stations
January 1991-2000